

ABSTRACT OF THE INVENTION

FAULT TOLERANT STORAGE SYSTEM AND METHOD WITH CONTROLLABLE REDUNDANCY

The disclosed invention stores files in a set of independent, functionally equal pieces. These pieces are placed on different servers of a distributed network to achieve a pre-determined level of fault tolerance. Terms of fault tolerance are defined in terms of amount of unavailable sites in the network allowing receipt and access to the data file.

- 5 Maximal and minimal number of pieces available are variable method parameters. The minimal amount of data pieces k needed to restore a data file is defined. The size of each piece is approximately equal to $1/k$ of the original file size. The maximal amounts of pieces are defined during distribution operation and depend upon a requested fault tolerance level. Redundancy in data storage is minimized and varies dynamically by
- 10 changing the total amount of pieces available. Significant increase in data transfer rate is possible because all file pieces could be transferred parallel and independently.